

CORRESPONDENCE CONTROL
OUTGOING LTR NO

DOE ORDER #

97 RF04476

DIST	LTR	ENC
Bengal, P		
Benson, C A		
Broussard, M C	X	X
Burdell, W J		
Crawford, A C		
Cypher, N P	X	X
Findley, M		
Guinn, L	X	X
Hopkins, J		
Hughes, F P		
Jenkins, K		
Konwinski, G	X	X
Law, J. E.	X	X
Lovseth, T. P.		
Motyl, K	X	X
Primrose, A L		
Rukavina, F		
Steffen, D E		
Tyson, A M	X	X
Wheeler, M		
DUNSTALL, A	X	X
ELIOTT, L. E.	X	X
DIREGRO, G	X	X



**Rocky Mountain
Remediation Services, L L C**
protecting the environment

Environmental Technology Site

4
orado 80402-0464
(303) 966 7000

August 25, 1997

D C Shelton
Kaiser-Hill, L L C
Environmental Compliance
P O Box 464, Bldg T130C
Golden, CO 80402-0464



000067327

97-RF-04476

**SUBJECT RECENT ELEVATED PLUTONIUM AND AMERICIUM IN WATER AT RFCA
POINT OF COMPLIANCE, WALNUT CREEK AT INDIANA STREET - JEL-073-97**

As specified in the draft Surface Water Integrated Monitoring Plan (SW IMP), Environmental Restoration evaluates 30-day moving averages¹ for selected radionuclides at Rocky Flats Cleanup Agreement (RFCA) Points of Evaluation (POEs) and Points of Compliance (POCs). Recent water-quality monitoring results at POC surface water monitoring location GS03 (Walnut Creek at Indiana Street, see map, Attachment 1) show values above the Action Level and Standards Framework reporting value of 0.15 pCi/L for plutonium (Pu) and americium (Am). Per RFCA (Attach 5, Sect 2.4) RMRS is reporting elevated 30-day average Pu and Am activities at GS03 (Walnut Creek at Indiana Street) for the period, mid-June to early July 1997. RMRS has previously reported this information through the occurrence reporting system on August 15 and during the fact-finding meeting on August 18, 1997. Results for available data at GS03 are summarized below in Table 1 and plotted (for all of FY97) in Attachment 2.

Table 1 Summary of 30-Day Moving Averages Above 0.15 pCi/L
for Pu and Am at GS03 10/1/96-7/5/97

Location	Parameter	Date(s) Above 0.15 pCi/L	Date(s) of Maximum 30-Day Average	Maximum 30-Day Average (pCi/L)
GS03	Pu-239,-240	6/12 - 7/2/97	6/13 - 6/24/97	0.465
GS03	Am-241	6/13 - 6/24/97	6/13 - 6/24/97	0.256

The individual analytical results for the composited samples collected around the period of these elevated 30-day averages have been reviewed and we have no reason to question their accuracy.

During this time period, no off-normal conditions were noted in either decontamination and decommissioning (D&D) or environmental cleanup activities that may have affected water quality, nor were there any closure activities occurring in the Walnut Creek drainage between Pond A-4 and Indiana Street. An initial walkdown of the Walnut Creek drainage between GS03 and Pond A-4 indicated no unusual conditions which might provide clues to elevated radionuclides in surface water for the May-July timeframe.

¹ The 30-day average for a particular day is calculated as a volume-weighted average for a 'window' of time containing the previous 30-days of flow. Each day has its own discharge volume (measured at the location with a flow meter) and activity (from the sample carboy in place that day). Therefore, there are as many as 365 30-day moving averages for each location in a given year.

PATS (T130G)
RMRS CC (116) X X
CORRESPONDENCE CONTROL X X
TRAFFIC

CLASSIFICATION

UCNI	
UNCLASSIFIED	X X
CONFIDENTIAL	
SECRET	

AUTHORIZED CLASSIFIER
SIGNATURE

DOCUMENT CLASSIFICATION

REVIEW WAIVER PER

CLASSIFICATION OFFICE

DATE

IN REPLY TO RFP CC NO

ACTION ITEM STATUS

☐ OPEN ☐ CLOSED
☐ PARTIAL

LTR APPROVALS

ORIG & TYPIST INITIALS

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

CEX-010-98

ADMIN RECORD

OU06-A-000212

Three of four consecutive composited samples collected at GS03 for the period May 15, 1997, to July 5, 1997, showed composited sample activities above 0.15 pCi/L. Table 2 summarizes these analytical results at GS03 for this period. These composited results are also plotted together with the flow record for GS03 in Attachment 3.

Table 2 Summary of Recent Plutonium and Americium Results
from GS03 5/15/97 to 7/5/97

Location	Composite Sample Collection Period	Pu-239,-240 Activity (pCi/L)	Am-241 Activity (pCi/L)
GS03	5/15/97-6/25/97	0.465	0.256
GS03	6/25/97-6/27/97	0.206	0.018
GS03	6/27/97-7/1/97	0.184	0.056
GS03	7/1/97-7/5/97	0.000*	0.024

*Actual result = -0.004" for this sample, result is rounded to zero for practical reporting and calculational purposes

Note that the results of the final sample in the series showed little or no activity for plutonium or americium.

Immediately downstream of station GS03 this water flows offsite and was diverted around Great Western Reservoir during this time period. Pond A-4 was discharged during the period 6/25/97 - 7/6/97. Analytical results from the samples collected during the discharge at GS11 (Pond A-4 outfall) showed normally low (less than 0.01 pCi/L) Pu and Am levels. This information indicates that the source of the Pu and Am observed at GS03 is downstream of Pond A-4 or located in a tributary to Walnut Creek in the Pond A-4-to-GS03 stream reach. This area has no known sources of significant contamination.

Per RFCA, we have initiated source evaluations and consideration of appropriate mitigating actions for elevated water quality results in Walnut Creek. And to immediately address these elevated water quality results the following actions were taken:

- verified laboratory results and 30-day average calculations for the recent GS03 water quality measurements,
- performed a "walk down" of stream channel and adjacent areas between Pond A-4 and GS03 looking for any unusual conditions which might indicate new sources,
- confirmed that water quality measurements have returned to normal,
- requested the re-analysis of remaining sample aliquots for two composited samples,
- drafted preliminary action plan for addressing elevated radionuclide levels, and
- performed appropriate notifications to Site personnel and Stakeholders.

Near-term planned actions to address GS03 water quality will include:

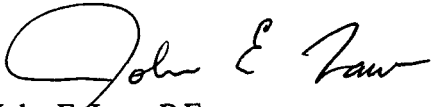
- performing additional sediment and soil sampling upgradient of GS03,
- re-evaluation of all water, soil, and sediment radioanalytical results for GS03 and associated upgradient locations,
- installation of additional monitoring stations upstream of GS03,
- performing detailed evaluation of all Site activities potentially impacting GS03 water quality,
- additional walkdown activities to assess No Name Gulch and McKay ditch sub-drainages and to identify origin of baseflow,
- sharing information and consulting with the Actinide Migration Panel to solicit additional source evaluation ideas,

D C Shelton
August 25, 1997
97-RF-04476
Page 3

- evaluating ground water data for wells in the vicinity of GS03, and
- evaluating laboratory performance through additional blind samples

The Site's current plan for Walnut Creek source evaluation and consideration of potential mitigating actions that might improve Walnut Creek water quality will be augmented to specifically include GS03 and associated upgradient areas. The Site had already provided the draft plan for regulatory agency review (namely, the *Plan for Source Evaluation and Preliminary Proposed Mitigating Actions for Walnut Creek Water-Quality Results (July 1997)*) and their comments are being addressed. The plan outlines efforts to evaluate and potentially mitigate high values of plutonium (and americium) in the Walnut Creek drainage. We propose to integrate the source evaluation and mitigating actions for GS03 in the next revision of the Walnut Creek plan.

If you have additional questions on this transmittal please contact Keith Motyl at extension 2172

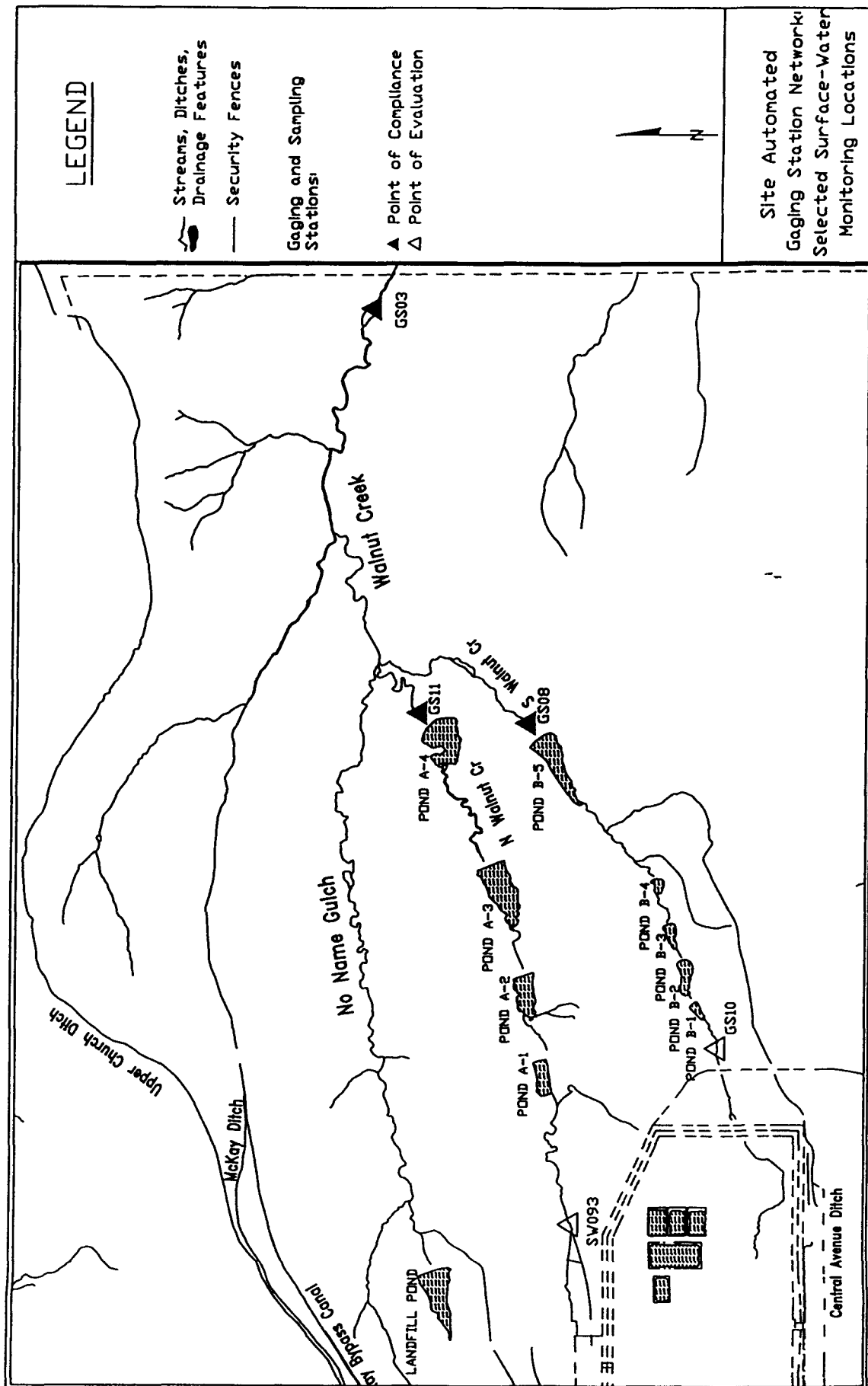


John E. Law, P E
Manager, Water Management and Treatment
Rocky Mountain Remediation Services, L L C

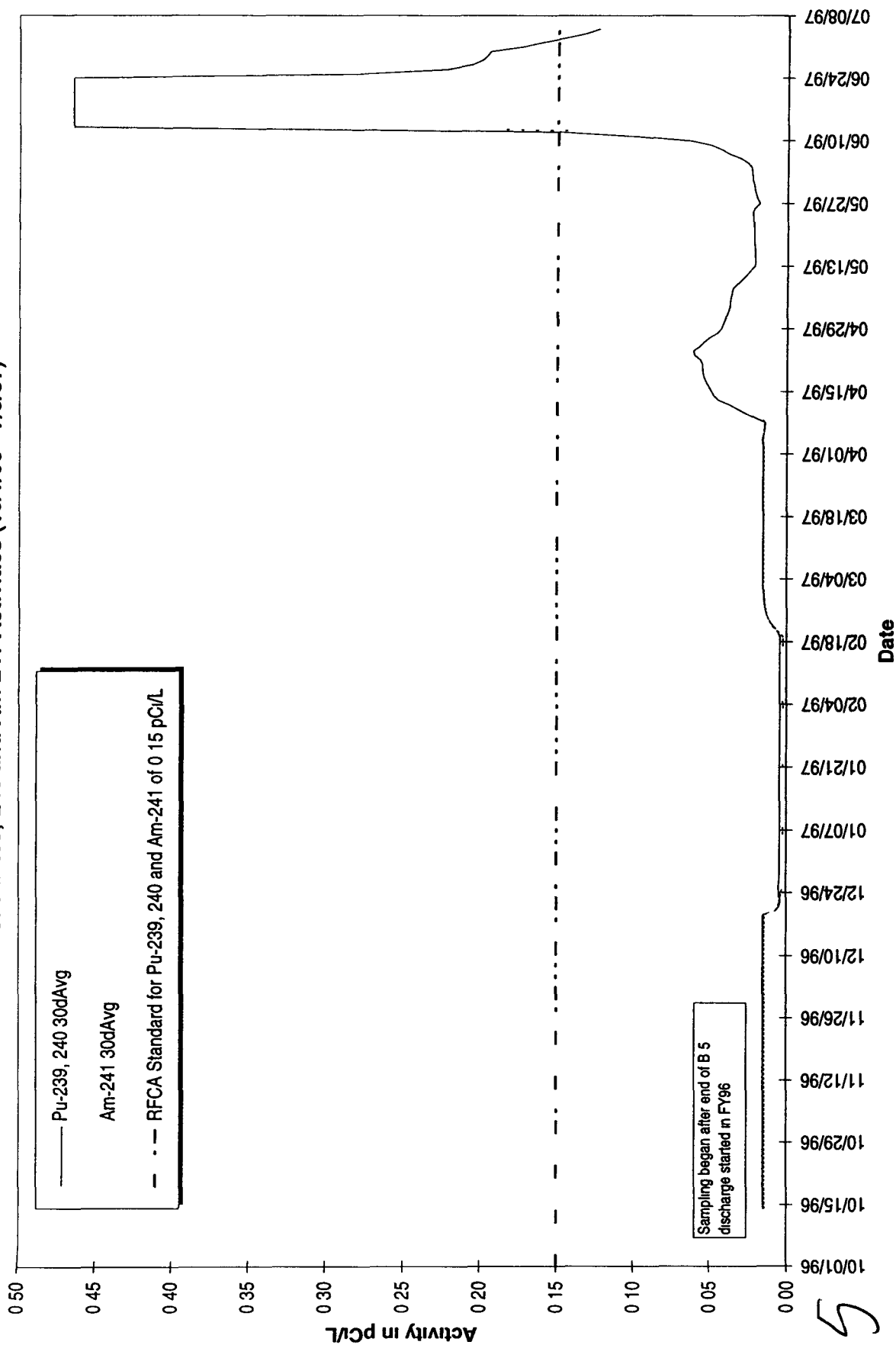
KMM slm

Attachments
As Stated

cc
C Dayton
G H Setlock
A Sieben
J Uhland



Gaging Station GS03 Water Year 1997 30-Day Volume-Weighted Moving Averages for Pu-239,-240 and Am-241 Activities (10/1/96 - 7/5/97)



Gaging Station GS03 Water Year 1997 To Date Hydrograph and Composite Sample Analytical Results Shown at Midpoint of Sampling Periods (10/1/96 - 7/5/97)

